

WHAT IS CLAIMED IS:

1. A method of regenerating an adsorbent, comprising
applying a voltage between a first electrode made from the
adsorbent in which a substance is adsorbed and a second electrode, to
5 elute the substance from the first electrode in an ionic state, in an
electrolyte.
2. The method according to claim 1, wherein the substance is one
of a heavy metal and fluorine.
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3. The method according to claim 2, wherein the substance is
mercury, and the first electrode is used as an anode.
4. The method according to claim 3, wherein the electrolyte is
15 sulfuric acid.
5. The method according to claim 1, wherein the substance is one
of mercury and selenium, and the first electrode is used as a cathode.
- 20 6. The method according to claim 5, wherein the electrolyte is one
selected from the group consisting of sodium chloride, potassium
chloride and sodium carbonate.

7. The method according to claim 1, wherein the applying includes sweeping the voltage in a range from a positive voltage to a negative voltage.

5 8. The method according to claim 7, wherein the substance is desorbed from the adsorbent while one of oxygen and hydrogen is generated by the applying.

9. The method according to claim 1, wherein the adsorbent is
10 carbon material that has been used in an exhaust gas treatment apparatus.

10. The method according to claim 9, wherein the carbon material is one of activated carbon and activated carbon fiber.

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11. An apparatus for regenerating an adsorbent, comprising:
an electrolytic cell filled with an electrolyte;
an electrode unit that includes a first electrode made from the adsorbent in which a substance is adsorbed and a second electrode,
20 the first electrode and the second electrode being soaked in the electrolyte; and

a power source that supplies a voltage applied between the first electrode and the second electrode.

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12. The apparatus according to claim 11, wherein the adsorbent is carbon material that has been used in an exhaust gas treatment apparatus.

5 13. The apparatus according to claim 12, wherein the carbon material is one of activated charcoal and activated carbon fiber.

14. The apparatus according to claim 11, wherein the substance is precipitated by an inverse reaction on the second electrode to recover
10 the substance.